

cctctctgtttcgttcctcgtagacgaagaagaagaatctcaggttttagctttcga 60
agcttccaaaattttgaattttgatcttctgtggctcttttgtaaatacagactgaagatat 120
ttagattaccagaagttgttcaaggaatgggttcagtggaacagcacggaagataaaaag 180
agactttttttccagattttgctgatccaaaatctgaatagttgttcatgttcttgat 240
caaactctggaaagaggaagtttgttggtatctagaagaagataacaatgttggtattctta 300

1 M L D S L
gtgtcgaaactgccttcgttatcgacatctgatcacgcttctgtggttgcttgaatctc 360
6 V S K L P S L S T S D H A S V V A L N L
tttgttgcaacttctttgtgcttgtattgttcttgggtcatcttttggaagagaatagatgg 420
26 F V A L L C A C I V L G H L L E E N R W
atgaacgaatccatcacgccttgttgattgggctaggcactgggtgttaccattttgttg 480
46 M N E S I T A L L I G L G T G V T I L L
attagtaaaaggaaaaagctcgcattcttctcgtcttttagtgaagatcttttcttcatatat 540
66 I S K G K S S H L L V F S E D L F F I Y
cttttgccacccattatattcaatgcagggttcaagtaaaaaagaagcagtttttccgc 600
86 L L P P I I F N A G F Q V K K K Q F F R
aatttcgtgactattatgcttttgggtgctgttgggactattatttcttgcaaatcata 660
106 N F V T I M L F G A V G T I I S C T I I
tctctaggtgtaacacagttctttaagaagttggacattggaacctttgacttgggtgat 720
126 S L G V T Q F F K K L D I G T F D L G D
tatcttgctatttgggtgccatatttgcgtgcaacagattcagtatgtacactgcaggttctg 780
146 Y L A I G A I F A A T D S V C T L Q V L
aatcaagacgagacacctttgctttacagtcttgtattcggagaggggtgttgtgaatgat 840
166 N Q D E T P L L Y S L V F G E G V V N D
gcaacgtcagttgtggtcttcaacgcgattcagagctttgatctcactcacctaaaccac 900
186 A T S V V V F N A I Q S F D L T H L N H
gaagctgcttttcatcttcttggaaacttcttgtatttgtttctcctaagtaccttgctt 960
206 E A A F H L L G N F L Y L F L L S T L L
gggtgctgcaaccgggtctgataagtgcgatgttatcaagaagctatactttggaaggcac 1020
226 G A A T G L I S A Y V I K K L Y F G R H
tcaactgaccgagaggttgcccttatgatgcttatggcgtatctttcttatatgcttgct 1080
246 S T D R E V A L M M L M A Y L S Y M L A
gagcttttgcacttgagcgggtatcctcactgtgttttctgtggtattgtgatgtcccat 1140
266 E L F D L S G I L T V F F C G I V M S H
tacacatggcacaatgtaacggagagctcaagaataacaacaaagcatacctttgcaact 1200
286 Y T W H N V T E S S R I T T K H T F A T
ttgtcatttcttgcggagacatttattttcttgtatgttggaaatggatgccttgacatt 1260
306 L S F L A E T F I F L Y V G M D A L D I
gacaagtgagatccgtgagtgacacaccgggaacatcgatcgagtgagctcaatccta 1320
326 D K W R S V S D T P G T S I A V S S I L
atgggtctggtcatggttgaagagcagcgttcttccgttatcggttctatctaac 1380
346 M G L V M V G R A A F V F P L S F L S N
ttagccaagaagaatcaaagcgagaaaatcaactttaacatgcaggttgtgatttgggtgg 1440
366 L A K K N Q S E K I N F N M Q V V I W W
tctggtctcatgagaggtgctgtatctatggctcttgcatacaacaagtttacaagggcc 1500
386 S G L M R G A V S M A L A Y N K F T R A
gggcacacagatgtacgcgggaatgcaatcatgatcacgagtacgataactgtctgtctt 1560
406 G H T D V R G N A I M I T S T I T V C L

Figure 1a (continued on next page)

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tttagcacagtgggtgttttggtatgctgaccaaaccactcataagctacctattaccgcac 1620
426  F S T V V F G M L T K P L I S Y L L P H
cagaacgccaccacgagcatgttatctgatgacaacaccccaaaatccatacatatccct 1680
446  Q N A T T S M L S D D N T P K S I H I P
ttgttgaccaagactcgttcattgagccttcaggaaccacaatgtgcctcggcctgac 1740
466  L L D Q D S F I E P S G N H N V P R P D
agtatacgtggcttcttgacacggcccactcgaaccgtgcattactactggagacaattt 1800
486  S I R G F L T R P T R T V H Y Y W R Q F
gatgactccttcatgacgacccgtctttggaggtcgtggctttgtaccctttgttccaggt 1860
506  D D S F M R P V F G G R G F V P F V P G
tctccaactgagagaaaccctcctgatccttagtaaggcttgagggtaacgtggaagaaa 1920
526  S P T E R N P P D L S K A -
gctttgatttttttttggtagaaaagggtgattcaaattatgcttttgtgtaaattatcca 1980
tttgtaatattgtttgtgaggacagaaatctgtcctaacgttttgagagcagaaagcaaa 2040
acatggcaactttgaagtgtttgattgatgtatgtaattatattcatattttgtttgttg 2100
taacacaaactacacatttgtttatgttttgaatttggtttttgcttcgaaaaaaaaaaaa 2160
aaaaaaaaaaaaaaaaaaaaaa 2178

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Figure 1a (continued)

tcttcgtttgcgattggtgttttcaaaatcgacgaaatcgaaaacattatcgagtgaaaa 60
 atgagtatcggtattaacagagtttgtgacgaataaaactagcagctgagcatcctcaggtg 120
 1 M S I G L T E F V T N K L A A E H P Q V
 ataccaatctcagtggttcacgcgcattctctgtctatgttttagttatcggccacttgctt 180
 21 I P I S V F I A I L C L C L V I G H L L
 gaagagaatcgatgggttaaatgaatctattaccgccatttttagtaggagcagcatcagga 240
 41 E E N R W V N E S I T A I L V G A A S G
 acagtgatcttacttattagtaaaggaaaaagttcacatattttggtggttgatgaagaa 300
 61 T V I L L I S K G K S S H I L V F D E E
 ctcttcttcatttaccttcttctcctccaataatcttcaatgctgggttccaagttaagaaa 360
 81 L F F I Y L L P P I I F N A G F Q V K K
 aagaagttttttcacaaactttttaaccatcatgtcctttggtgtgattggagttttcatc 420
 101 K K F F H N F L T I M S F G V I G V F I
 tccactgtcattatctcgtttgggacttggtggctgtttcccaagttgggatttaagggg 480
 121 S T V I I S F G T W W L F P K L G F K G
 ttgagtgttagagactatcttgccataggaacgattttctcatcaactgatactgtttgc 540
 141 L S A R D Y L A I G T I F S S T D T V C
 actctacagattctccatcaagatgaaacaccattgctatacagcttagtctttggagaa 600
 161 T L Q I L H Q D E T P L L Y S L V F G E
 ggagtgggtgaatgatgcaacctcagttgtactgttcaacgccgtgcaaaagattcaattt 660
 181 G V V N D A T S V V L F N A V Q K I Q F
 gaaagcctaaccgggttgacggcgctgcaagtattttgggaactttttgtacctcttctca 720
 201 E S L T G W T A L Q V F G N F L Y L F S
 acaagcacacttctcggaattggtgtggggctaataacatcttttgttcttaaaaccttg 780
 221 T S T L L G I G V G L I T S F V L K T L
 tattttggaagacattctactacacgcgaactcgccatcatggttctaattggcttacctt 840
 241 Y F G R H S T T R E L A I M V L M A Y L
 tcatatatgtttggctgagctcttctcattaagtgggaattcttactgttttcttctgtggt 900
 261 S Y M L A E L F S L S G I L T V F F C G
 gttttaatgtcgcattatgcatcatataacgtgacagagagctcaagaatcacttccagg 960
 281 V L M S H Y A S Y N V T E S S R I T S R
 catgtattttgcaatgttgctctttattgcgagacattcatatttctgtatgtttggaaca 1020
 301 H V F A M L S F I A E T F I F L Y V G T
 gatgctcttgattttacaaagtggaagacaagcagcttaagctttgggggtactctgggt 1080
 321 D A L D F T K W K T S S L S F G G T L G
 gtctccggtgtcataaccgcatttagtattgcttgacgagcagcatttgtctttccactc 1140
 341 V S G V I T A L V L L G R A A F V F P L
 tcggtcttaacaaatttcatgaacaggcacactgaaagaaacgagtctatcacatttaag 1200
 361 S V L T N F M N R H T E R N E S I T F K
 catcaggtgatcatttgggtgggcaggtctaattgcgaggtgctgtctcaattgctctgggt 1260
 381 H Q V I I W W A G L M R G A V S I A L A
 ttcaagcagttcacatactccggtgttacattggatcctgtgaatgctgccatgggtcacc 1320
 401 F K Q F T Y S G V T L D P V N A A M V T
 aacaccactatcggtgttctctttactacactgggtctttggtttcctcacaaaaccactt 1380
 421 N T T I V V L F T T L V F G F L T K P L
 gtgaattatctccttctcaagatgcaagtcacaacaccggaaatagaggtaaacgcact 1440
 441 V N Y L L P Q D A S H N T G N R G K R T

Figure 1b (continued on next page)

gagccagggttctccgaaagaagatgcgacacttcctcttctttcctttgacgagtctgct 1500
 461 E P G S P K E D A T L P L L S F D E S A
 tccaccaacttcaatagagctagagatagtatttcccttctgatggaacaacctgtgtac 1560
 481 S T N F N R A R D S I S L L M E Q P V Y
 accatccaccgctactggagaaagtttgacgacacatacatgaggcctatcttcggtgga 1620
 501 T I H R Y W R K F D D T Y M R P I F G G
 cctcgtcgagaaaaccaaccagaatgctagaattgatccgggttctccgcggggaaatca 1680
 521 P R R E N Q P E C
 tgatgagttagtttttttatagtcaagaaagtaggtagtttggttttagctaaaacagtt 1740
 tcttaaagtttttgtaaattgtatacaacaaggttcttctatatacgc 1788

Figure 1b (continued)

658720-785120

(i)

acaaaagctggagctccaccgcggtggcgccgctctagaactagtggatccccgggct 60
 2 R A
 geaggaattcgcgccgctcgccatgtcctccgccgtcatcgattccactatcttcct 120
 22 A G I R G R L G H V L R R H R F H Y L P
 gaagccagcggttcgcttctcattgggttaatcgctcgggtatacttgctaatactccgat 180
 42 E A S G S L L I G L I V G I L A N I S D
 actgagactagcattaggacgtgggttaatttccacgaagagttcttcttctgttttg 240
 62 T E T S I R T W F N F H E E F F F L F L
 ttgcctcccatcatattccagtcaggtttcagtccttcaacctaaaccattcttttctaac 300
 82 L P P I I F Q S G F S L Q P K P F F S N
 tttggagccattgttacctttgctatcatcggaacttttgcgcttcagttgttactgggt 360
 102 F G A I V T F A I I G T F V A S V V T G
 ggtctgggttatcttggcggtcttatgtatctcatgtataaacttccctttgttgagtgt 420
 122 G L V Y L G G S M Y L M Y K L P F V E C
 cttatgtttggtgcacttatatcagctacggacctgtcactgtactctctatattccag 480
 142 L M F G A L I S A T D P V T V L S I F Q
 gatgtgggcaccgatgttaacctgtatgctttgggtctttggagaatcagttctgaatgat 540
 162 D V G T D V N L Y A L V F G E S V L N D
 gctatggcaatatcattgtacagaacaatgtccttagtaaaccgccagtcctcgtctggg 600
 182 A M A I S L Y R T M S L V N R Q S S S G
 gaacatttttcatggtggtgatcaggttttttgagactttgctgggtcaatgtcgcaggg 660
 202 E H F S
 gttggggttggttgcattcacttcagcttaatatcctcctcgcacccctatttccta 720

(ii)

ggacttcgagggccatggcatttgcacttgcacttcaataacttcatgatctaccagaggt 60
 3 T R G
 cacggcccaatcatcttttactgcaccacaactattgttgttgcacggttttactaata 120
 23 H G P I I F Y C T T T I V V V T V L L I
 ggaggttcgacaggtaaaatggttgaagctttggaagttgttaggtgacgatcttgatgac 180
 43 G G S T G K M L E A L E V V G D D L D D
 tccatgtctgaaggctttgaagagagcgatcatcagtatgtccctcctccttttagcatt 240
 63 S M S E G F E E S D H Q Y V P P P F S I
 ggagcttcatctgacgaggatacatcatcaggaagcaggttcaagatgaagctgaag 300
 83 G A S S D E D T S S S G S R F K M K L K
 gagtttcacaaaaccactacatcattcaccgcttggacaaaaactttctgactccgttc 360
 103 E F H K T T T S F T A L D K N F L T P F
 ttcacaactaatagtggagatggagatggagatggggagtagcatggaaaagatgtgtat 420
 123 F T T N S G D G D G D

Figure 1(c)

cgccacgaccctcagggccaggttaagcagcagcaagcggccggcggttggtatactgctt 60
cagattatgatgctcgtgctttccttcggttctcggccatgtcctccgcccgtcatcgattc 120
1 M M L V L S F V L G H V L R R H R F
cactatcttcctgaagccagcgggttcgcttctcattggtttaatcgtcggtatacttgct 180
18 H Y L P E A S G S L L I G L I V G I L A
aatatctccgatactgagactagcattagtagcgtgggttaatttccacgaagagttcttc 240
38 N I S D T E T S I R T W F N F H E E F F
ttcttggttttgggtgcctcccatcatattccagtcaggtttcagtccttcaacctaaacca 300
58 F L F L L P P I I F Q S G F S L Q P K P
ttcttttctaactttggagccattgttacctttgctatcatcggaacttttgctcgcttca 360
78 F F S N F G A I V T F A I I G T F V A S
gttggttactgggtggtctggtttatcttgccggctctatgtatctcatgtataaacttccc 420
98 V V T G G L V Y L G G S M Y L M Y K L P
tttggttgagtgtcttatgtttggtgcacttatatcagctacggaccctgtcactgtactc 480
118 F V E C L M F G A L I S A T D P V T V L
tctatattccaggatgtgggcaccgatgttaacctgtatgctttgggtctttggagaatca 540
138 S I F Q D V G T D V N L Y A L V F G E S
gttctgaatgatgctatggcaatatcattgtacagaacaatgtccttagtaaaccgccag 600
158 V L N D A M A I S L Y R T M S L V N R Q
tcctcgtctggggaacattttttcatggtggtgatcaggttttttgagacttttgctggc 660
178 S S S G E H F F M V V I R F F E T F A G
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198 S M S A G V G V G F T S A L L F K Y A G
ttggacaccgagaatcttcagaacttgagtggtgtctctttgtacttttcccgtatttt 780
218 L D T E N L Q N L E C C L F V L F P Y F
tcatacatgcttgagaaggtggttgggtctctccggcattgtttctatactcttcacagga 840
238 S Y M L A E G V G L S G I V S I L F T G
attggttatgaagcgctacactttctcaaactctctcagaagcttcacagagtttcgtatct 900
258 I V M K R Y T F S N L S E A S Q S F V S
tctttttttcacttgatatcttcgctagcagaaactttcacgttcatttacatgggattt 960
278 S F F H L I S S L A E T F T F I Y M G F
gatattgccatggagcagcatagctggtcccatggttgggtttatccttttctctattgta 1020
298 D I A M E Q H S W S H V G F I L F S I V
tcctcatttactgatcgtcagtgattgtatgcagtggtgtcaatgtattttgggtgtgca 1080
318 S S F T D R Q *
tatttggtcaacctatttagacaggagaaccagaagatacctatgaagcaccaaaaagcc 1140
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tcc 1683

Figure 1d

1 cagggccaggttaagcagcagcaagcggccggcggttggtatactgcttcagattatgatg 60
 1 ctcgtgcttttccttcggttctcggccatgtcctccgccgtcatcgattccactatcttcct M M 120
 3 L V L S F V L G H V L R R H R F H Y L P
 gaagccagcgggttcgcttctcattgggttaatcgtcggtatacttgctaataatctccgat 180
 23 E A S G S L L I G L I V G I L A N I S D
 actgagactagcattaggacgtgggttaatttccacgaagagttcttcttctgtttttg 240
 43 T E T S I R T W F N F H E E F F F L F L
 ttgcctcccatcatattccagtcaggtttcagtccttcaacctaaaccattcttttctaac 300
 63 L P P I I F Q S G F S L Q P K P F F S N
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 83 F G A I V T F A I I G T F V A S V V T G
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 103 G L V Y L G G S M Y L M Y K L P F V E C
 cttatgttttggtgcacttatatcagctacggaccctgtcactgtactctctatattccag 480
 123 L M F G A L I S A T D P V T V L S I F Q
 gatgtgggcaccgatgttaacctgtatgctttgggtctttggagaatcagttctgaatgat 540
 143 D V G T D V N L Y A L V F G E S V L N D
 gctatggcaatatcattgtacagaacaatgtccttagtaaaccgccagtcctcgtctggg 600
 163 A M A I S L Y R T M S L V N R Q S S S G
 gaacattttttcatgggtggtgatcaggttttttgagacttttgctggctcaatgtctgca 660
 183 E H F F M V V I R F F E T F A G S M S A
 ggggtttgggttggtgattcacttcagctttaatatccttccctcgaatcctctatttttctt 720
 203 G V G V G F T S A L I S F L E S S I F L
 attagatgtcacatggccaaaatgtattgtaaaatcttaactcagaacacctctttaag 780
 223 I R C H M A K N V L *
 tatgcaggattggacaccgagaatcttcagaacttgagtggtgtctctttgtacttttc 840
 ccgtatttttcgtaagtagacaaaacaactctcctcctgtctcttcgtatttatgacaac 900
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 gacgattttccaagacattttcga 2122

Figure 1e

AtNHX1	-----	-----	-----MLDSI	VSKLPSLSTS	DHA-----
ScNHX1	MLSKVLLNIA	FKVLLTT---	AKRAVDPPDD	DELLPSPDLP	GSDDPIAG--
HsNHX6	MARRGWRRAP	LRRGVGSSPR	ARRLMRPLWL	LLAVGVFDWA	GASDGGGGEA
CeNHX1	-----	-----	-----MKVESL	FFMSQTFDVI	TKN-----
AtNHX1	----SVVALN	-----	-----HFVAL	DCACIVLGH	LEENR--WEN
ScNHX1	---DPDVDLN	PVTEEMFS--	SWALFIMILL	LISALWSSYY	LTQKRIRAVH
HsNHX6	RAMDEEIVSE	KQAEESHROD	SANLLIFILL	LTTLTILTIWL	FKHRRARFLE
CeNHX1	----KTIVKE	PPD-----	-----YLM	LEVKPE----	-----G
AtNHX1	ESITAILIGL	GTGVITLLIS	-KGKSS----	-----	--HLLVFESE
ScNHX1	EIVLSIFYGM	VIGLIIRMS	GHYIQDTV--	-----	-----TENSS
HsNHX6	EIGLAIYGL	LVGLVIRYGI	-HVPSDVNNV	TLSCEVQSSP	TLLLVTFDPE
CeNHX1	GRVVSFHYEL	IEGFFADKRR	-KIEQQIEQK	S-----	-----VESPE
AtNHX1	IEFIYLLPPI	IFNAGFOVKK	KOFFRNEFTI	MLEGAVGTII	SCTIISLGV
ScNHX1	YFENVLLPPI	IINSGYELNO	VNFFNNILSI	LIEAIPGTFI	SAVVICITII
HsNHX6	VFFNILLPPI	IFYAGYSLKR	RFFRNIGSI	LAYAFITGTI	SCFVIGSIVY
CeNHX1	VFFNMLIPPI	IFNAGYSLKK	RFFRNIGSI	LAIVFITGTI	SCFGTCLMIS
AtNHX1	QEFKLDIG-	----TEDLGD	YLAIGALFAA	TDSVCTLOVL	NODETPL-LY
ScNHX1	IITFLGLES-	---IDISEAD	AMSVGATISA	TDPVTILSIF	NAYKVDPKLY
HsNHX6	GCVTLMKVTG	QLAGDEYETD	CLLFGAIVSA	TDPVTVLATF	HELOVDVELY
CeNHX1	VITSIFOMG-	----YSEKE	LLFFGALISA	TDPVTILSVF	NOMNVEADLE
AtNHX1	SLVFGEGWVN	DATSVVVFNA	IQSFDLT---	--HLNHEAAF	HLLGNFLYTF
ScNHX1	TIFGESILN	DAISIVMFET	CKEHGQ---	--PATFSSVF	EGAGLFLMTF
HsNHX6	ALIFGESVLN	DAVAIVLSSS	IVAYQPAGDN	SHTFDVTAME	KSIGIFLGIF
CeNHX1	ALIFGESALN	DAVAIVLSEV	IENFSTS---	SEAITLQDFG	SATAGFAGVE
AtNHX1	LLSTLLGAAT	GLISAYVIKK	LYFGRHSTDR	EVALMMLMAY	LSYMLAELFD
ScNHX1	SVSLLIGVLI	GILVALLLKH	THIR-RYPQI	ESCLILLIAY	ESYFFSNGCH
HsNHX6	SGSFAMGAAT	GVVTALVTRF	TKER-EFOLL	ETGLFFLMST	STFMAEAWG
CeNHX1	FGSLMLGFMI	GCMNAFLTKM	TLIS-EHALL	ESSLFVLISY	ISFLVAEVC
AtNHX1	ISGILTVFFC	GIVMSHYTWE	NVTESSRITT	KHTEATLSEL	AETFIELYVG
ScNHX1	ISGIVSLVFC	GITLKHAYAY	NYSRRSQITI	KYIFOLLARL	SENFIFIIYG
HsNHX6	FLGVAVLFC	GITQAHYTYN	NISTESQHRT	KOLFELLNEL	AENFIESYVG
CeNHX1	ISGIVSVLFC	GIAQAHYTYN	NLSDESQSNT	KHFEHMYSET	MESFIFCYVG
AtNHX1	MDALDIDKWR	SVSDTPGTSI	AVSSILMGLV	MYGRAAFVVP	LSFLSNIAKT
ScNHX1	EE-----L	FTEVELVYKP	LLITVAATSI	CVARWCAVVP	LSQFYNWIYR
HsNHX6	ET-----L	ETFQNHVENP	TFVVGAFVAI	FTGRAANIYP	LSLLENLGR
CeNHX1	VS-----V	FVTNNQRWSF	SFLFSLTSI	TASRALFVVP	LSWLLNIRRR
AtNHX1	NQ-----	-----SEK	INENMOVVIV	WSGLMRGAVS	MALAYNKFTR
ScNHX1	VKTIRMSGI	TGENISVPDE	IPYNYOMMTF	WAGL-RGAVG	VALA-----
HsNHX6	SK-----	-----	IGSNEQHMM	EAGL-RGAMA	FALA-----
CeNHX1	PK-----	-----	IPKRYQHMLL	EAGL-RGAMA	FALA-----

Figure 2a (continued on next page)

AtNHX1	AGHTDVRGNA	IMITSTITVC	LFSTWVFGML	TKPLISYLLP	HQNATTSMLS
ScNHX1	LGIQGEY-KF	TLLATVLVVV	VLTVIIFGCT	TAGMLEVLNI	KTGCISEEDT
HsNHE6	IRDTATYARQ	MMFSTTLLIV	FFTWWVFGGG	TTAMLSCLHI	RVCVDSDOEH
CeNHE1	GRNTSTENRQ	MIFATTTAVV	IVTVLVNGGL	TSWMIDYLOI	KHGKDAIEEG
AtNHX1	D---DNTPKS	IHIP-----	-----LLDQ	DSFIEPSG--	-----
ScNHX1	S---EDEFD	IEAP-----	--RAINLLNG	SSIQTDLG--	-----P
HsNHE6	LGVPENERRT	TKAESAWLFR	MWYNFDHNYL	KPLLTHSGPP	LTTTLPACCG
CeNHE1	Q-RLENSMSS	SPAD-----	--QHSDEDES	VPVTMSPG--	-----LN
AtNHX1	-NHNVPRPDS	IRGELTRPTR	TVHYYWRQFD	DSFMRPVFEGG	RGEVVPFVPGS
ScNHX1	YSDNNSPDIS	IDQFAVSSNK	NLPNNISTTG	GNTFGGLNET	ENTSPNPARS
HsNHE6	PIARCLTSPQ	AYENQEQDK	DDSDLILNDG	DISLTYGDST	VNTEPATSSA
CeNHE1	PWDKAFLPRK	WYHEDARWQL	LK--LVFQFH	ETSTDPCDAI	FGTNTPTVLS
AtNHX1	PTERNPPDLS	KA-----	-----	-----	-----
ScNHX1	SMDKRNLRDK	LGTIFNSDSQ	WFQNFDEQVL	KPVFLDNVSP	SLQDSATQSP
HsNHE6	PRRFMGNSSE	DALDRELAFG	DHELVIRGTR	LVLPMDDSEP	PLNLLDNTRH
CeNHE1	SIDFLVDFKP	STRVRQCRAL	QYNCTIRDSI	D-----	-----
AtNHX1	-----				
ScNHX1	ADFSSQNH				
HsNHE6	GPA-----				
CeNHE1	-----				

Figure 2a (continued)

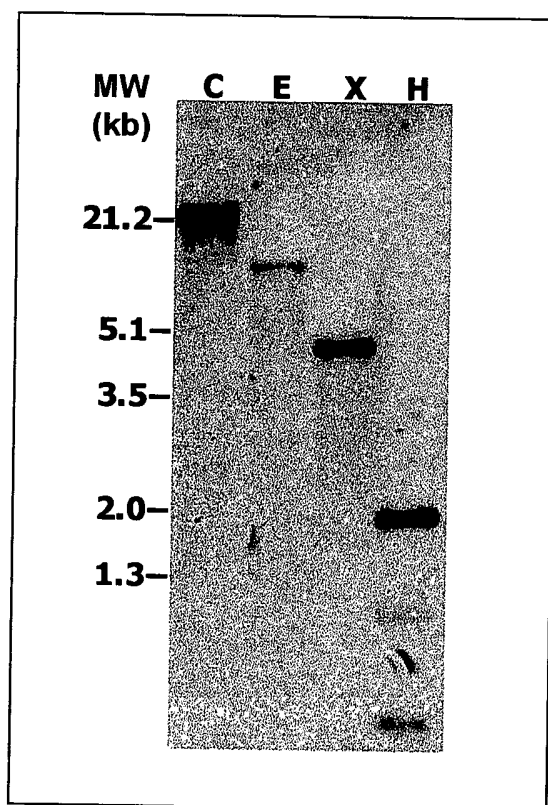
AtNHX1	MLDSLVSCLP	SLSTSDHASV	VALNLFVALL	CACIVLGHLL	EENR--WVNE
AtNHX2	MSIGLTFEVT	NKLAAEHPOV	IPISVFIAIL	CLCLVIGHLL	EENR--WVNE
AtNHX3	-----	-----	-----MML	VLSEFVLGHVL	RRHRFHYLPE
AtNHX1	SITALLIGLG	TGVTILLISK	GKSS-HLLVF	SEDLFFIYLL	PPIIFNAGFQ
AtNHX2	SITAILVGAA	SGTVILLISK	GKSS-HLLVF	DEELFFIYLL	PPIIFNAGFQ
AtNHX3	ASGSLIGLI	VGILANISDT	ETSIRTWFNF	HEEFFFFLFL	PPIIFQSGFS
AtNHX1	VKKKOFFERNE	VTIMLFGAVG	TIISCTIISL	GVTQFFKKLD	IGTFDLGDYL
AtNHX2	VKKKKFFHNF	LTIMSEFVIG	VFISTVIISF	GTWWLFPKLG	FKGLSARDYL
AtNHX3	LQPKPFESNF	GAIVTFATIG	TFVASVVTGG	LVYLGGSMYL	MYKLFPVECL
AtNHX1	AIGAIFAATD	SVCTLOVLNQ	DETPL-LYSL	VFEGGVNDA	TSVVVFNAIQ
AtNHX2	AIGTIFSSTD	TVCTLOILHQ	DETPL-LYSL	VFEGGVNDA	TSVVLFNAAQ
AtNHX3	MEGALISATD	PVTVLSIFQD	VGTDVNLYAL	VFGE SVLNDA	MAISLYRTMS
AtNHX1	SFDLTHLNHE	AAFHLLGNFL	YLELLSTLLG	AATGLISAYV	IKKLYFC-RH
AtNHX2	KIQFESLTCW	TALQVFGNFL	YLFSTSTLLG	IGVGLITSEV	IKTLYFC-RH
AtNHX3	LVNROSSSGE	HFFMVVIRFF	ETFAGSMSAG	VGVGFTSALL	FKYAGLDTEN
AtNHX1	STOREVALMM	LMAYLSYMLA	ELFDLSGILT	VFFCGIVMSH	YTHNVTESS
AtNHX2	STRELAIMV	LMAYLSYMLA	ELFSLSGILT	VFFCGVIMSH	YASYNVTESS
AtNHX3	LQNLCCLEFV	LPFYESYMLA	EGVGLSGIVS	ILETGIVMKR	YTFNLSSEAS
AtNHX1	RITTKHTFAT	LSFLAETFI	LYVGM-D-ALD	IDKWRVSVD	PGTSIAVSSI
AtNHX2	RITSRHVFAM	LSFIAETFI	LYVGT-D-ALD	FTKWKTSLS	EGGTLGVSGV
AtNHX3	QSFVSSFHFL	ISSLAETFTF	IYMGFDIAME	QHSWSHVG--	EILFSIVSSF
AtNHX1	LMGLVMVGRA	AFVFPLSFLS	NLAKKNQ--S	EKINENMOVV	IWWSGLMRGA
AtNHX2	ITALVILLGRA	AFVFPLSVLT	NFMNRHTERN	ESITEKHQVI	IWWAGLMRGA
AtNHX3	TDRQ-----	-----	-----	-----	-----
AtNHX1	VSMALAYNKE	TRAGTQVVRG	NAIMITSTIT	VCLFSTVWFG	MLTKPLISYL
AtNHX2	VSIALAFKQF	TYSQVTLDPV	NAAMVTNTTI	VVLETTLVFG	FLTKPLVNYL
AtNHX3	-----	-----	-----	-----	-----
AtNHX1	LPHQNAATTSM	LSDDNTPKSI	HIP--LLDQD	SFIEPSGNHN	VPRPDSIRGF
AtNHX2	LPQDASHNTG	NRGKRTEPGS	PKEDATLPLL	SEDESASTNF	NRARDSISLL
AtNHX3	-----	-----	-----	-----	-----
AtNHX1	LTRPTRTVHY	YWRFDDSEM	RVFEGGRGFV	PFVPGSPTER	NPPDLSKA
AtNHX2	MEQPVYTIHR	YWRKFDDTYM	RPIFGGPRRE	NQPEC-----	-----
AtNHX3	-----	-----	-----	-----	-----

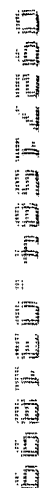
Figure 2b

AtNHX3	MMLVLSFVLG	HVLRRHRFHY	LPEASGSLLI	GLIVGILANI	SDTETSIRTW
AtNHX4	MMLVLSFVLG	HVLRRHRFHY	LPEASGSLLI	GLIVGILANI	SDTETSIRTW
AtNHX3	FNFHEEFFFFL	FLLPPIIFQS	GFSLQPKPFF	SNFGAIVTFA	IIGTFVASVV
AtNHX4	FNFHEEFFFFL	FLLPPIIFQS	GFSLQPKPFF	SNFGAIVTFA	IIGTFVASVV
AtNHX3	TGGLVYLGG	MYLMYKLPFV	ECLMFGALIS	ATDPVTVLSI	FQDVGTDVNL
AtNHX4	TGGLVYLGG	MYLMYKLPFV	ECLMFGALIS	ATDPVTVLSI	FQDVGTDVNL
AtNHX3	YALVFGESVL	NDAMAIISLYR	TMSLVNRQSS	SGEHFFMVVI	RFFETFAGSM
AtNHX4	YALVFGESVL	NDAMAIISLYR	TMSLVNRQSS	SGEHFFMVVI	RFFETFAGSM
AtNHX3	SAGVGVGFTS	ALLFKYAGLD	TENLQNLCC	LFVLFPYFSY	MLAEGVGLSG
AtNHX4	SAGVGVGFTS	ALISFLESSI	FLIRCHMAKN	VL-----	-----
AtNHX3	IVSILFTGIV	MKRYTFSNLS	EASQSFVSSF	FHLISSLAET	FTFIYMGFDI
AtNHX4	-----	-----	-----	-----	-----
AtNHX3	AMEQHSWSHV	GFILEFSIVSS	FTDRQ		
AtNHX4	-----	-----	-----		

Figure 2c

Figure 3.





ATGTTGGATTCTCTAGTGTGCGAACTGCCTTCGTTATCGACATCTGATCACGCTTCTGTGG
TTGCGTTGAATCTCTTTGTTGCACTTCTTTGTGCTTGTATTGTTCTTGGTCATCTTTTGAAG
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CCATTTTGTGATTAGTAAAGGAAAAAGCTCGCATCTTCTCGTCTTTAGTGAAGATCTTTT
CTTCATATATCTTTTCCACCCATTATATTCAATGCAGGGTTTCAAGTAAAAAAGAAGCAG
TTTTCCGCAATTTCTGACTATTATGCTTTTGGTGCTGTTGGGACTATTATTTCTTGCAC
AATCATATCTCTAGGTGTAAACACAGTTCTTTAAGAAGTTGGACATTGGAACCTTTGACTTG
GGTGATTATCTTGCTATTGGTGCCATATTGCTGCAACAGATTCAGTATGTACACTGCAGG
TTCTGAATCAAGACGAGACACCTTTGCTTTACAGTCTTGTATTCGGAGAGGGTGTGTGAA
TGATGCAACGTCAGTTGTGGTCTTCAACGCGATTTCAGAGCTTTGATCTCACTCACCTAAAC
CACGAAGCTGCTTTTCATCTTCTTGGAACTTCTTGTATTTGTTTCTCCTAAGTACCTTGCT
TGGTGCTGCAACCGGTCTGATAAGTGCGTATGTTATCAAGAAGCTATACTTTGGAAGGCA
CTCAACTGACCGAGAGGTTGCCCTTATGATGCTTATGGCGTATCTTTCTTATATGCTTGCT
GAGCTTTTTCGACTTGAGCGGTATCCTCACTGTGTTTTCTGTGGTATTGTGATGTCCATTA
CACATGGCACAATGTAACGGAGAGCTCAAGAATAACAACAAAGCATACTTTGCAACTTT
GTCATTTCTTGCGGAGACATTTATTTTCTTGTATGTTGGAATGGATGCCTTGGACATTGAC
AAGTGGAGATCCGTGAGTGACACACCGGGAACATCGATCGCAGTGAGCTCAATCCTAATG
GGTCTGGTCATGGTTGGAAGAGCAGCGTTCGTCTTTCCGTTATCGTTTCTATCTAACTTAG
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GTCTCATGAGAGGTGCTGTATCTATGGCTCTTGCCATACAACAAGTTACAAGGGCCGGGC
ACACAGATGTACGCGGGAATGCAATCATGATCACGAGTACGATAACTGTCTGTCTTTTAA
GCACAGTGGTGTGTTGGTATGCTGACCAAACCACTCATAAGCTACCTATTACCGCACCAGA
ACGCCACCACGAGCATGTTATCTGATGACAACACCCCAAAATCCATACATATCCCTTTGTT
GGACCAAGACTCGTTCATTGAGCCTTCAGGGAACCAACAATGTGCCTCGGCCTGACAGTAT
ACGTGGCTTCTTGACACGGCCCACTCGGAACCGTGCATTACTAAGTGGAGACAATTTGAT
GACTCTTTCATGCGACCCGCTTTTGAGAGTCTGGCTTTGTACCCTTTGTTCCAGGTTCTCC
AACTGAGAGAAACCCTCCTGATCTTAGTAAGGCTTGAGGGTAACGTGGAAGAAAAGCTTT
GATTTTTTTTTGGTAGAAAAGGGTGATTCAAATTATGCTTTTGTGTAAATTATCCATTTGTA
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CAACTTTGAAGTGTTTGATTGATGTATGTAATTATATTATTTGTTTTGTTGTAACACAA
ACTACACATTTGTTTATGTTTTGAATTTGGTTTTTGCTTCGAAAAAAAAAAAAAAAAAAAA

MLDSLVS KLPSLSTSDHASVVALNLFVALLCACIVLGHLLEENRWMNESITALLIGLGTGVITL
LISKGKSSHLLVSEDLFFTYLLPPIFNAGFQVKKKQFFRNFTIMLFGAVGTIISCTIISLGVITQF
FKKLDIGITFDLGDYLAIGAIFAATDSVCTLQVLNQDETPLLYSLVFGEVNDATSVVFNAI
QSFDLTHLNHEAAFHLLGNFLYLFLSTLLGAATGLISAYVIKKLYFGRHSTDREVALMMLMA
YLSYMLAELFDLSGILTVFFCGIVMSHYTWHNVTESSRITTKHTFATLSFLAETFIIFYVGMDA
LDIDKWRSVSDTPGTSIAVSSILMGLVMVGRAAFVFLSFLSNLAKKNQSEKINFNMQVVIWW
SGLMRGAVSMALAYNKFTRAGHTDVRGNAMITSTITVCLFSTVVFGLTKPLISYLLPHQNA
TTSMLSDDNTPKSIHPLLDQDSFIEPSGNHNVPRPDSIRGFLTRPTRNRALLTGDNLMTLSCDP
SLEVVALYPLFQVLQLRETLILVRLEGNVEEKL

Figure 5 (a)

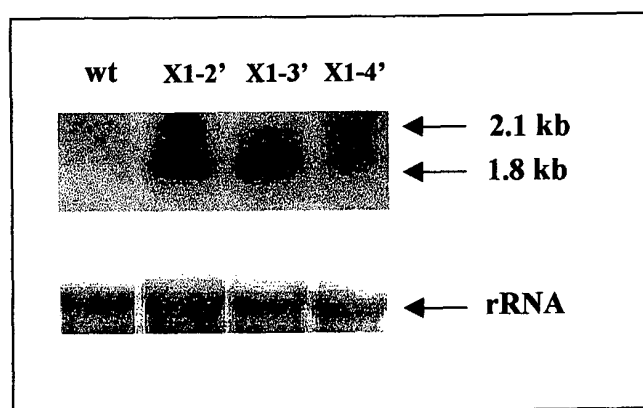
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 ATGTGATTTCTTAGTGCMAACTGCCCTTGTATCGACATCTGATCAGCTTCTGTGTTGCGTGAATCTTTGTT 81
 M L D S L V S K L P S L S T S D H A S V V A L N L E V
 GCACCTTCTGTGCTGTATGTTCTTGTGATCTTTTGGMAGMATAGATGATGACGAAATCCATCACCGCTTGTG 162
 A L L C A C I V L G H L L E E N R M M N E S I T A L L
 ATGGGCTAGGCACTGGTGTACCATTTTGTGATTAGTAAAGMAAGCTCGCATCTTCTGCTTAGTGAAGATCTT 243
 I G L G T G V T I L L I S K G K S S H L L V F S E D L
 TTCTCATATATCTTTGGCCACCATTATATTCAMTGCAGGGTTTCMAGTMAAAMAGMAGAGTTTCCGCAATTTGCTG 324
P P I Y L L L P P I I F N A G F Q V K K Q F F R N F V
 ACTATATGCTTTTGTGCTGTGGACTATTAATTTCTTGCACAAATCATATCTCTAGGTGTAACACAGTTCTTTAAGAG 405
 T I M L F G A V G T I I S C T I I S L G V T Q F F K K
 TTGACATTTGAACCTTTGACTTGGGTGATTAATCTTGTATTTGGTCCATATTTGCTGCACAGATTCAGTATGACACTG 486
 L D I G T F D L G D Y L A I G A I F A A T D S V C T L
 CAGTTCTGAATCMAGACGAGACACTTGTCTTAGAGTCTTGTATTTGGAGAGGGTGTGTGATGATGCAACGTCAGTT 567
 Q V L N Q D E T P L L Y S L V F G E G V V N D A T S V
 GGTCTTCMAGCGAATTCAGACTTGTATCTACATCACTMAACCAAGAGCTGTTTCATCTTGTGAACCTTCTTG 648
 V V F N A I Q S F D L T H L N H E A A F H L L G N F L
 TATTTGTTCTCTAAGTACTTGTGTTGCTGCAACCGGTCTGATAGTGGATGTATCAAGAGCTATACTTGA 729
 Y L F L L S T L L G A A T G L I S A Y V I K K L Y F G

Figure 5(b) (continued next page)

AGCACTCAACTGACCGAAGGTTGCCCTATGATGCTTATGGCGTCTTCTTATATGCTTGCTGAGCTTTTGACTTG 810
 R H S T D R E V A L M M L M A Y L S Y M L A E L F D L
 AGCGTATCCTCACTGTTGTTTCTGTGTAATGTGATGCCATTACACATGGCACATGTAACGAGAGCTCAAGAATA 891
 S G I L T V F F C G I V M S H Y T W H N V T E S S R I
 ACACAAAGCATACCTTTCNACTTTGTCATTCTTGGGAGACATTATTCTTGTATGTTGAATGATGCCTTGGAC 972
 T T K H T F A T L S F L A E T F I F L Y V G M D A L D
 ATTGACAAGTGAGATCCGTAGTGACACACCGGACATCGATCGAGTGAAGCTCAATCCTAATGGGCTGTCATGGT 1053
 I D K M R S V S D T P G T S I A V S S I L M G L V M V
 GGAGAGCAGCGTTCGTCCTTCGGTTATCGTTTCTATCTAAGTACCAAGAAATCAAGCGAAGAAATCACTTTAC 1134
 G R A A E V F P L S F L S N L A K K N Q S E K I N F N
 ATGACAGTTGTAATGGTGGTCTGTCATGAGAGGTGTGATCTATGCTCTTGATACACAAAGTTTACAGGGCC 1215
 M Q V V I M W S G L M R G A V S M A L A Y N K F T R A
 GGCACACAGATGACCGGGAATGCATCATGATCAGAGTACGATACGTCTGTCTTTAGCACAGTGGTGGT 1296
 G H T D V R G N A I M I T S T I T V C L F S T V V F G
 ATGCTGACCAACCACTCATTAAGCTAATACCGCACCAAGACGACAGCATGTATCTGATGACACACCCCA 1377
 M L T K P L I S Y L L P H Q N A T T S M L S D D N T P
 AMTCCATCATATCCCTTTGTGACCAAGACTGTCATGAGCTTCAGGAAACCAATGTGCTCGGCTGACAGT 1458
 K S I H I P L L D Q D S F I E P S G N H N V P R P D S
 ATACGTGCTTCTGACACGGCCCACTCGMCCGTGCTATCTACTGAGACATTTGATGACTCTTCATGCGACCCG 1539
 I R G F L T R P T R N R A L L T G D N L M T L S C D P
 TCTTGGAGTGTGCTTTGATACCTTTGTTCCAGGTTCTCCAACTGAGAGAAACCTCCTGATCTTAGTAAGCTTGAG 1620
 S L E V V A L Y P L F Q V L Q L R E T L L I L V R L E
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 G N V E E K L *

Figure 5(b) (continued)

Figure 6.



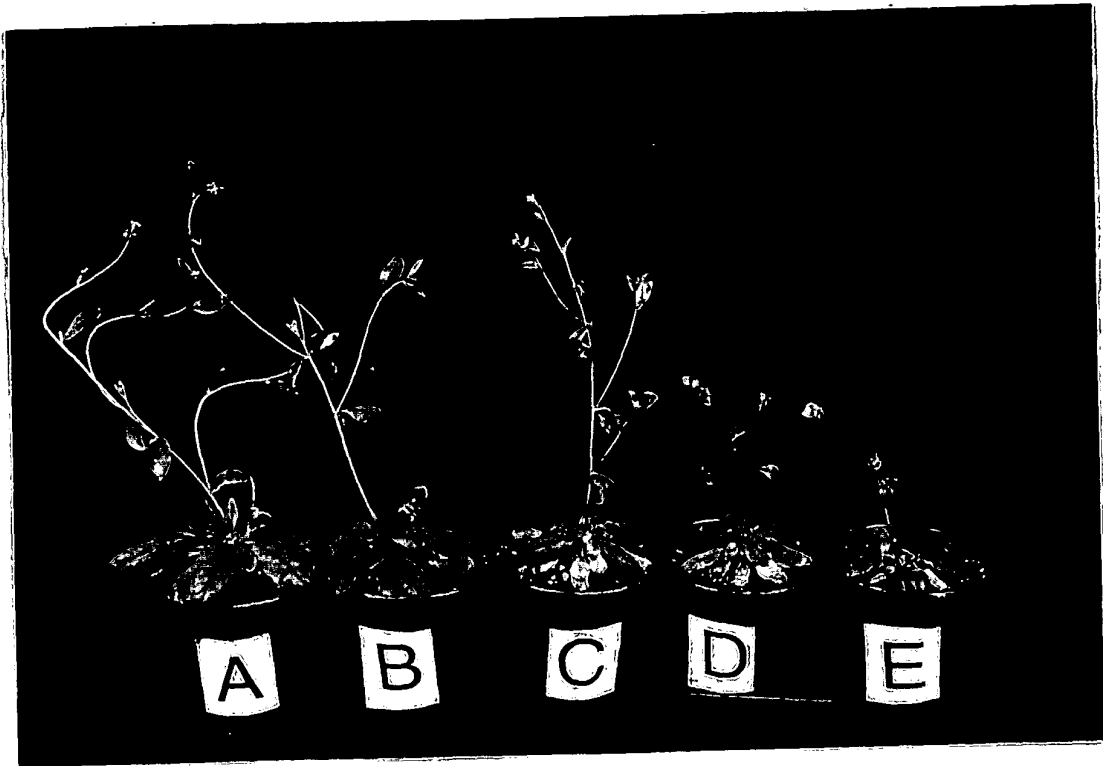


Figure 7(a)

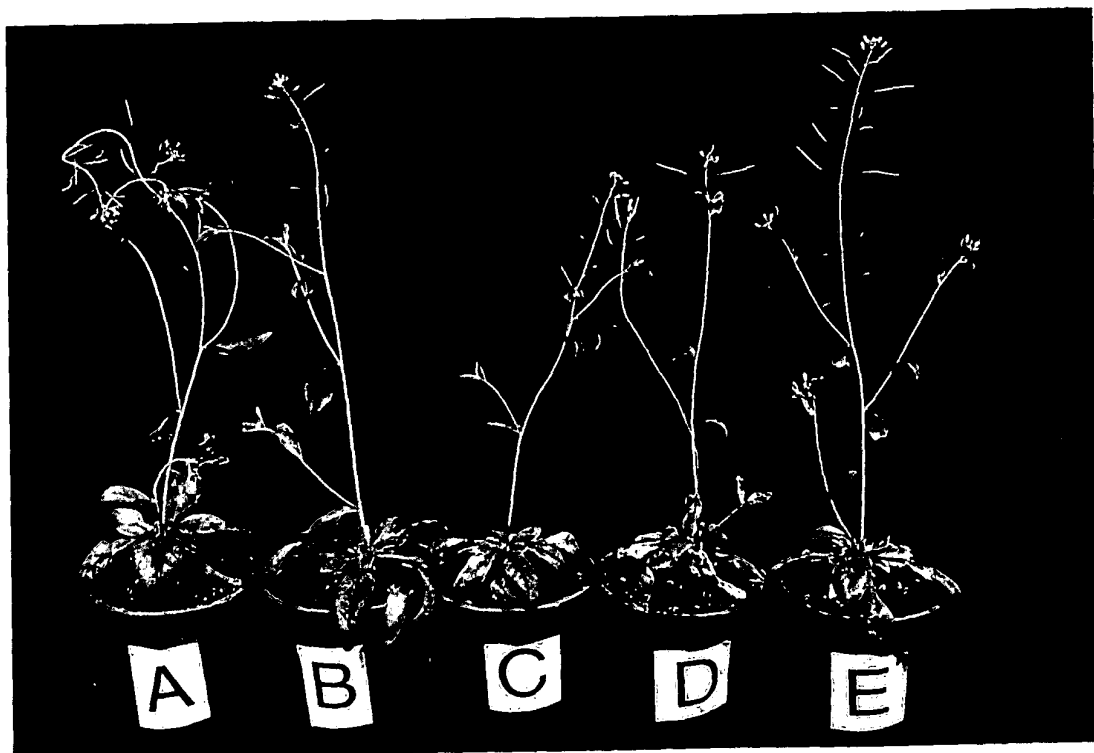


Figure 7(b)

Figure 1 shows five potted plants, labeled A through E, arranged in a row. Each plant is in a small, light-colored pot. The plants vary in their growth habit and height. Plant A is the shortest and most compact. Plant B is slightly taller and more spread out. Plant C is the tallest and most upright. Plant D is similar in height to C but has a different branching pattern. Plant E is the tallest and most upright, with a single main stem. The plants are set against a dark, uniform background.

Figure 7(d)

Figure 7(f)

668760-4337-250



Figure 7(g)

Figure 8(a)

[SEQ ID NO:21]

1 mpdskhwvil lfrrdgdddd ddgqdpalqe lysswalfil lvlligallt syyvqskkir
61 aihetvisvf vgmvvgliir vspgliiqnm vsfhstyffn vllppiilns gyelhqsntff
121 rnigtltfa fagtffisavt lgvlvyifsf lnfenlsmtf vealsmgatl satdpvtvla
181 ifnsykvdqk lytiifgesi lndavaivmf etlqqfqqkt lhfftlfsgl gifiitffis
241 lligvsigli talllkysyl rrypsiesci illmaytsyf fsngchmsgv vsllfcgitl
301 khyaffnmsy kaklstkyvf rvlaqlsenf ifiylgmslf tqvdlvykpi filittvavt
361 asrymnvflp snllnkfhrq rngnldhip ysyqmmfwa glrgavgval aagfegenag
421 tlrattlvvv vltliifggt tarmleilhi etgvaadvds dteigmlpwq qspefdlens
481 amelsdasae pvvvdqqftt ehfdegniap tlskkvsstf eqyqraagaf nqffhssrdd
541 qaqlwtrfde evikpvller dnlkngrtkk

Figure 8(b)

[SEQ ID NO:22]

1 mlskvllnia fkvllttakr avdpdddel lpspdlpgsd dpiagdpdvd lnpvteemfs
61 swalfimlll lisalwssyy ltqkriravh etvlsifygm vigliirmsp ghyiqdtvtf
121 nssyffnvll ppiilnsgye lnqvnffnm lsilifaipg tfisavvigi ilyiwtflgl
181 esidisfada msvgatlsat dpvtlsifn aykvdpklyt iifgesllnd aisivmfetc
241 qkfhhgqpatf ssvfegaglf lmtfsvslli gvliligilval llkhthirry pqiesclill
301 iayesyffsn gchmsgivsl lfcgitlkhay aaynmrrsq itikyifql arlsenfifi
361 ylgelleftev elvykpllii vaaisicvar wcavfplsqr vnwiyrvkti rsmggitgen
421 isvpdeipyn yqmmtfwagl rgavgvalal giqgeykftl latvlvvvvl tviifgggta
481 gmlevlnikt gciseedtsd defdieapra inllngssiq tdlgpysdnn spdisidqfa
541 vssknlpnn isttggntfg glntentsp nparssmdkr nlrcklgtif nsdsqwfqnf
601 deqvlkpvl dnvpslqds atqspadfss qnh

Figure 8(c)

[SEQ ID NO:23]

1 caagaagcta tacattggaa ggcattctac tgaccgtgag gttgccctta tgatgctcat
61 ggcttacctt tcatatatgc tggctgagtt gctagatttg agcggcattc tcaccgtatt
121 cttctgtggt attgtaatgt cacattacac ttggcataac gtcacagaga gttcaagagt
181 tacaacaaag cacgcatttg caactctgtc cttcattgct gagacttttc tcttctgta
241 tgttgggatg gatgcattgg atattgaaaa atgggagntt nccagtgaac gacctggnaa
301 atccattngg gtaagctcaa ttttgctagg gattgggtcc tgattggaag ngctgctttt
361 gnaattcccc tgggtggtc

Figure 8(d)

[SEQ ID NO:24]

1 gtttggtaat tggaggaggt ggagtaatgg agctcgggtt ggggatgggg atggggctgg
61 gcgacccgnc tgcggactac ggctcgatcg cggcgggtggg gatgttcgtg gcgctcatct
121 gcgtctgcat cgtcgtcggc cacctcctcg aggagagccg atggatgaac gagtccatca
181 ccgcgctaata catcgggttg ggtacttgga ggagtgnntt tgnatggtgt cgagctggaa
241 gcactcggna tactggtggt cagcgagg

Figure 8(e)

[SEQ ID NO:25]

1 acattccctg aaagnactgc tggacntttg agggctcgga tgccgtgtaga tccaggactc
61 aaaggatgnt gagctagagg ttggtgggat ggtgaagttt gcttaccaag ggccatttac
121 attgtctggc atcaaactat gccagccac tgatggcacg gctcagttta atgaggctgg
181 ccacaccttc tccagtggga gttatctgtg catctaattg gtaccttctt tgtattgtag
241 ttgttacttt acccttgatt tgctcggttt gcttctaaag caggttggtga aattcctatt
301 gtatgtngtg acgcttggtt gttttttgag gctggaaatt acatcatggt tttgatttgt
361 ctattaaaaa aaaaaaaaaa

Figure 8(f)

[SEQ ID NO:26]

1 gtcaaaactc atccctcctc ttccatttgc atattcttct ttatcatctt ttcttcccta
61 aattagagtc tatccttcog cccatagtct ttgacaccct tttcaaaatt ctagaacaag
121 aattttattc ttcatatata tatatatata tatccaatta accatctcaa tctcatattc
181 acatatacct cataaaccat ccataacatc cttaaaaacc ctctaagccc tttcaaactt
241 tgatttgtaa ttgtttctct tataagtctt aacctgcaca aatcaatttt aatttcttat
301 gttcatatag ttatgaatga ttgaaaaaaa cacaaatgac tccagttatc tgtgagatct
361 ctatgataaa ctctactctc cagacgcagg acacatttag ttcaatcttt ctctgttggt
421 ttcctctact ggttctatat tttctcatga attattaatt aatcctatat tctttctttt
481 caatacaaat ttagtttcat taattctatc aacataatca attaaactac atagttagaa
541 aaatagtact attaccacga tcactcaaag ttttttagtt ttaacaaac antctg

Figure 8(g)

[SEQ ID NO:27]

```
1 atttacatgg ttataccagt tatcttgagc acttatgcat catccagtga tcagttttgc
61 ttccattcag actgatgggt ctggcagaag taatgtattc tgggtggactt acatctatca
121 gcgatgatga aacttgatga tcagtttttt tagttgaaaa attctgcaag aacagctact
181 taatgctcta ttgtgtatcg caggcacaca tcagctgctg atgtctgcta tacttctgta
241 ctctcactat agctcatcta tgacgtctag acatgctagc gtatgtgtan nnnacatcgc
301 gctagtatgt atactctcac atcatatgct actgttctat atagaactat gtgatagcta
361 ctgtataact gctgtcatac agagtcccggt taatatcaat gctattttgc tttcctcaaa
421 gaaaaaagga aatgactttc cttttgatta tatatttgat ccagggtttc ggcttgctga
481 ctaagcctct gattaatctc ctctgccac caagacctgg ca
```

Figure 8(h)

[SEQ ID NO:28]

```
1 tttccgttat cgtttctatc taacttagcc aagaagaatc aaagcgagaa aatcaacttt
61 aacatgcagg ttgtgatttg gtgggtctggt ctcatgagag gtgctgtatc tatgggtctt
121 gcatacaaca agtttacaag ggccggggcac acagatgtac gnggggaatgc aatcatgac
181 acnggtacgn taactgtctg tntttttagc acagtgggtgt ttggtatgct gaccaaacca
241 ntcataagct acctatttac cgnaccanga accgtcatca acngggcatg tttatcttgn
301 attncaaata acccnaanaa tccnatacca
```

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